

What is claimed is:

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1. An apparatus for dissecting tissue to facilitate a laparoscopic surgical procedure in an anatomical region of a patient's body, the apparatus comprising:

5 (a) a cannula having an end which is insertable through a laparoscopic incision in the patient's body;

10 (b) an inflatable balloon coupled to the cannula, the balloon being inflatable to a shape suitable for the laparoscopic surgical procedure and the anatomical region of the patient's body in which the balloon is to be used, where the shape of the balloon allows the inflation of the balloon to cause a non-uniform dissection of tissue; and

15 (c) a lumen which provides access to the interior of the balloon for inflating the balloon with a fluid.

2. The apparatus of claim 1 wherein the balloon upon inflation causes the non-uniform dissection of tissue in that a characteristic of the dissection is not identical throughout the dissection. X

3. The apparatus of claim 1 wherein the characteristic of the dissection is the amount of the dissection. X

20 4. The apparatus of claim 1 further comprising a seal mounted to the cannula, the seal providing an air-tight seal between the anatomical region of the patient's body in which the balloon is used and the exterior of the patient's body.

25 5. The apparatus of claim 1 further comprising a coupling structure which couples the balloon to the cannula, where the coupling structure releases the balloon from the

cannula when the balloon is inflated.

6. The apparatus of claim 5 wherein the coupling structure comprises a tearable sleeve with perforations.

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7. The apparatus of claim 1 wherein the balloon has a distal portion and a proximal portion, the diameter of the balloon when inflated generally decreases from the proximal portion towards the distal portion of the balloon.

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8. The apparatus of claim 1 wherein the balloon upon inflation has a non-tapered portion and a tapered portion.

9. The apparatus of claim 8 wherein the balloon has a distal portion and the tapered portion is located at the distal portion of the balloon.

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10. The apparatus of claim 1 wherein the balloon has a tapered portion, the tapered portion having a distal portion which is small enough upon inflation to dissect tissue near the patient's ankle.

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11. The apparatus of claim 1 wherein the balloon in its deflated state is gathered about the cannula.

12. The apparatus of claim 1 wherein a portion of the balloon in its deflated state is inverted into another portion of itself to reduce the length of the deflated balloon.

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13. The apparatus of claim 1 wherein the balloon in its deflated state is inverted into itself a plurality of times to reduce the length of the deflated balloon.

14. The apparatus of claim 1 wherein the balloon in its deflated state is inverted
5 into itself and then gathered about the cannula.

15. The apparatus of claim 1 wherein the balloon in its deflated state is inverted into itself a plurality of times to reduce the length of the deflated balloon and then gathered about the cannula to reduce the width of the deflated balloon.

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16. The apparatus of claim 15 wherein the balloon upon inflation ungathers itself from the cannula and then everts to cause a controlled inflation of the balloon.

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17. The apparatus of claim 1 further comprising a handle coupled to the cannula, the handle comprising a first section and a second section, the first section of the handle permitting removal of a first part of the apparatus from inside the patient's body and the second section of the handle permitting removal of a second part of the apparatus from inside the patient's body

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18. The apparatus of claim 17 wherein the first section of the handle removes at least a portion of the cannula from the patient's body.

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19. The apparatus of claim 1 further comprising a handle coupled to the cannula, the handle comprising a plurality of sections where each section of the plurality of sections permits the removal of a respective part of the apparatus from inside the patient's body such

that a port providing access into the patient's body remains after use of the plurality of sections to remove the parts of the apparatus from the patient's body.

20. The apparatus of claim 1 further comprising a valve coupled to the cannula,
5 the valve controlling the passage of a fluid for insufflating the dissected tissue.

Suh B4 21. An apparatus for dissecting tissue to facilitate a laparoscopic surgical procedure in a patient's body comprising:

10 (a) a cannula having an end which is insertable through a laparoscopic incision in the patient's body;

(b) a balloon mounted to the cannula, the balloon having a distal portion and a proximal portion, where the diameter of the distal portion of the balloon is smaller than the diameter of the proximal portion of the balloon; and

(c) a lumen which provides access to the interior of the balloon for inflating the balloon with a fluid.

15 22. The apparatus of claim 21 further comprising:

a handle coupled to the cannula, the handle comprising a plurality of sections where each section of the plurality of sections permits the removal of a respective part 20 of the apparatus from inside the patient's body such that a port providing access into the patient's body remains after use of the plurality of sections to remove the parts of the apparatus from the patient's body.

Suh B5 23. A method of providing access to an anatomical structure in an anatomical 25 region within a body, the method comprising the steps of:

(a) providing an apparatus including a cannula, an inflatable balloon having a longitudinal axis and shaped for use in the anatomical region, and an inflation lumen having access to the interior of the balloon for inflating the balloon;

(b) making an incision in a body;

5 (c) inserting the balloon through the incision into the anatomical region;

(d) directing the balloon to the vicinity of the anatomical structure; and

(e) inflating the balloon to dissect tissue in the anatomical region to provide access to the anatomical structure such that the amount of dissection varies along the longitudinal axis of the balloon.

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24. The method of claim 23 wherein the balloon inflates to a tapered shape such that the diameter of the tapered portion generally decreases along the length of the balloon.

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25. The method of claim 23 wherein the balloon has a non-tapered portion and a tapered portion.

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26. The method of claim 23 further comprising the step of performing a surgical procedure on the anatomical structure without removing the balloon from the body.

27. The method of claim 26 further comprising the step of insufflating the dissected tissue in the anatomical region prior to the step of performing a surgical procedure.

28. The method of claim 26 wherein the anatomical structure is a vein and the surgical procedure is the step of clipping, ligating or dividing the vein.

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29. The method of claim 26 wherein the anatomical region is a subfascial plane in the lower leg of the body, the anatomical structure is a vein, and the surgical procedure is the step of clipping, ligating or dividing the vein in subfascial endoscopic perforator surgery.

5 30. The method of claim 23 further comprising the steps of deflating the balloon; removing the balloon from the body through the incision; and performing a surgical procedure on the anatomical structure.

10 31. The method of claim 30 further comprising the step of insufflating the dissected tissue in the anatomical region prior to the step of performing a surgical procedure.

15 32. The method of claim 30 wherein the anatomical structure is a vein and the surgical procedure is the step of clipping, ligating or dividing the vein.

33. The method of claim 30 wherein the anatomical region is a subfascial plane in the lower leg of the body, the anatomical structure is a vein, and the surgical procedure is the step of clipping, ligating or dividing the vein in subfascial endoscopic perforator surgery.

20 34. The method of claim 23 wherein the apparatus includes a first part, a second part, and a handle comprising a first section and a second section, the method further comprising the steps of:

using the first section of the handle to remove the first part of the apparatus from inside the body;

25 using the second section of the handle to remove the second part of the apparatus

from inside the body;
thereby creating a portal access into the body.

35. The method of claim 34 wherein the first part is a rod for tunneling in tissue in
5 the body.

36. The method of claim 34 wherein the first part is an obturator.

37. An apparatus for dissecting tissue to facilitate a laparoscopic surgical
10 procedure in an anatomical region of a patient's body, the apparatus comprising:

(a) a balloon being inflatable to a shape suitable for the laparoscopic surgical
procedure and the anatomical region of the patient's body in which the balloon is to be used,
the balloon having a distal portion and a proximal portion where the diameter of the balloon
when inflated generally decreases from the proximal portion towards the distal portion of the
balloon; and
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(b) a lumen which provides access to the interior of the inflatable balloon for
inflating the inflatable balloon with a fluid.

38. The apparatus of claim 37 wherein the balloon when deflated has its margins
20 gathered toward the center of the balloon.

39. The apparatus of claim 37 wherein a portion of the balloon when deflated is
inverted into another portion of itself to reduce the length of the balloon.

25 40. An apparatus for dissecting tissue to facilitate a laparoscopic surgical

procedure in an anatomical region of a patient's body, the apparatus comprising:

(a) a balloon being inflatable to a shape suitable for the laparoscopic surgical procedure and the anatomical region of the patient's body in which the balloon is to be used, the balloon having a tapered distal portion and a non-tapered proximal portion; and

5 (b) a lumen which provides access to the interior of the inflatable balloon for inflating the inflatable balloon with a fluid.

41. The apparatus of claim 41 wherein the balloon when deflated has margins which are gathered toward the center of the balloon.

10 42. The apparatus of claim 41 wherein a portion of the balloon when deflated is inverted into another portion of itself to reduce the length of the balloon.

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